Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_

**Notes Questions for the Unit 8 Notes, Part 2 Notes – Meiosis**

Compiled by Ms. Glick and Mrs. Krouse, AP Biology

For each of the statements, write a yes or a no to indicate specific differences between **Mitosis and Meiosis I:**

|  |  |  |
| --- | --- | --- |
| **Statement** | **Mitosis** | **Meiosis I** |
| During interphase, do DNA and other organelles replicate? |  |  |
| During prophase, does crossing over occur? |  |  |
| During metaphase, do the homologous chromosomes pair-up together? |  |  |
| During anaphase, do the sister chromatids separate? |  |  |
| During anaphase do the homologous pairs separate from each other? |  |  |
| Are the cells at the end diploid or haploid? |  |  |

For each of the statements, write a yes or a no to indicate specific differences between **Mitosis and Meiosis II:**

|  |  |  |
| --- | --- | --- |
| **Statement** | **Mitosis** | **Meiosis II** |
| Does crossing over occur? |  |  |
| During anaphase, do the sister chromatids separate? |  |  |
| Are the cells at the end diploid or haploid? |  |  |

For each of the statements, write a I or II to indicate whether this statement applies to **Meiosis I or Meiosis II.**

|  |  |
| --- | --- |
| **Statement** | **I or II?** |
| The end result of this process is four daughter cells. |  |
| The end result of this process is two daughter cells. |  |
| This process is similar to mitosis. |  |
| This process converts a parent diploid cell to haploid daughter cells. |  |
| This process converts a parent haploid cell to haploid daughter cells. |  |
| Chromosomes line up single file along the metaphase plate. |  |
| Chromosomes line up in homologous pairs along the metaphase plate. |  |
| Synapsis (pairing of homologous chromosomes) and crossing over take place. |  |
| Spindle fibers separate chromatids at the centromere. |  |
| Spindle fibers separate pairs of homologous chromosomes. |  |

**Notes Questions**

1. Compare and contrast metaphase I and metaphase II of meiosis.

1. Compare and contrast anaphase I and anaphase II of meiosis.
2. Compare and contrast the daughter cells of mitosis vs. meiosis. (Ex: Are they diploid or haploid? What type of cells are they? How many daughter cells are formed? Are the daughter cells genetically identical?)
3. What is crossing over? Why is it important for maintaining genetic variation in a population?
4. Let’s say an egg cell has 18 chromosomes. How many chromosomes did the original parent cell contain? Explain your reasoning.
5. Why do polar bodies form during oogenesis (meiosis in human females)? Why don’t polar bodies form during spermatogenesis (meiosis in human males)?
6. How many functional eggs are created during one round of oogenesis? How many functional sperm are created during one round of spermatogenesis?